REMARKS/ARGUMENTS

In the Office Action dated December 1, 2004, Claims 1-37 are pending in the present application. Claim 13 is objected to as being in improper dependent form and nonlimiting in light of Claim 10, and Claim 37 is objected to for being duplicative of Claim 34. Furthermore, Claims 1, 2, 4, 7, and 9 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,805,311 to Fuchs ("Fuchs"). Claims 1-4, 6, 7, 9-11, 13, 14, and 16 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,543,725 to Golinelli et al. ("Golinelli") and U.S. Patent No. 5,335,422 to Ferguson ("Ferguson"). Claims 26, 27, 31-34, and 37 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,240,206 to Baresh et al. ("Baresh"). In addition, Claim 5 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Fuchs in view of U.S. Patent No. 6,457,338 to Frenken ("Frenken"). Claims 17-21, 23, and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Golinelli. Moreover, Claims 17, 19, 21, and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Fuchs. Claim 24 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Fuchs in view of Frenken. Claims 5, 12, 17, 19-21, and 23-25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Golinelli in view of Frenken. Claims 17, 19-21, 23, and 25 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ferguson. Claims 28, 29, and 35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Baresh in view of U.S. Patent No. 4,807,479 to Sako et al. ("Sako"). Claims 30 and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Baresh in view of JP 362228302 to Keyakida ("Keyakida"). Finally, Claims 8, 15, 18, and 22 are objected to but would be allowable if rewritten to include all of the recitations of the base claim and any intervening claims.

Dependent Claims 13 and 37 have been cancelled, thereby mooting the objections to these claims. Dependent Claims 38 and 39 have also been added to further define the claims of the present application. In light of the amendments to independent Claims 1, 10, and 17 and subsequent remarks regarding independent Claims 1, 10, 17, 26, and 32, Applicants respectfully request reconsideration and allowance of the claims.

A. The Objection of Claims 13 and 37 are Overcome

Applicants have amended independent Claim 10 to recite that a measurement device is configured to measure a gap between the first and second template members, and dependent Claim 13 has therefore been cancelled. The Official Action also objected to Claim 37 as being duplicative of Claim 34. Claim 37 has also been cancelled. Thus, the objections to these claims are now moot.

B. The Rejections of Independent Claims 1 and 17 under 35 U.S.C. § 102(b) and § 103(a) are Overcome

Independent Claim 1 has been amended to recite that at least one of the template members is capable of being at least partially closed to urge the tubular member to a cross-sectional shape corresponding to the reference shape of the aperture, and a measurement device is configured to measure the relative position between the first and second template members. As will be noted, Applicants have amended independent Claim 1 to include similar language as that of allowable dependent Claim 22, although Claim 22 recites that the tubular member is urged to a generally circular cross-sectional shape while amended independent Claim 1 recites that the tubular member is urged to a cross-sectional shape corresponding to the reference shape of the aperture. Thus, the first and second template members may be urged towards a closed position with a predetermined force provided by an urging device and sufficient to urge a portion of the tubular member to the reference shape of the aperture. For example, if the cross-sectional shape of the tubular member is not round, the template members urge the tubular member to the round shape of the aperture. Independent Claim 17 also includes the recitation of urging the tubular member to a cross-sectional shape corresponding to a reference shape of the aperture, and has been amended to recite the step of measuring the relative position between the first and second template members.

None of the cited references, alone or in combination, teach or suggest that at least one of the template members is capable of being at least partially closed to urge the tubular member to a cross-sectional shape corresponding to the reference shape of the aperture, as recited by

independent Claim 1. Fuchs discloses a measuring device for the identification of the enveloping cylinder of precision round parts. More specifically, Fuchs discloses a gauge ring including two measuring jaws **Mb10, Mb11**. The measuring jaws are interconnected by a spring joint **Fg1**, and relative movement between the measuring jaws is transmitted to a measuring sensor **Mt** by measuring surfaces **Mf10, Mf11**. Although the measuring device of Fuchs is capable of identifying the enveloping cylinder of precision round parts, such as light waveguide plug pins, Fuchs does not teach or suggest that the measuring jaws urge the unit under test to a cross-sectional shape corresponding to the reference shape of the aperture. Furthermore, Fuchs does not teach or suggest that the measuring device is capable of measuring the relative position between the first and second measuring jaws. As such, Fuchs is capable of detecting relative motion between the first and second measuring jaws to determine roundness deviations, but is incapable of measuring the position between the first and second measuring jaws.

Golinelli discloses a ring gauge for measuring external dimensions that includes a ring having two measuring arms **4, 5** having opposite semicircular shapes. Feelers **12, 14** are attached to each of the measuring arms and are adapted to contact the cylindrical surface of the part **17** being checked. When the part is positioned between the arms, the feelers cause the arms to rotate away from the part as the feelers contact the part. The movement of the measuring arms generates electrical signals by a differential transducer **52** that is detected by a power supply, processing unit, and indicating unit. Therefore, although Golinelli arguably discloses that the ring device is capable of measuring the distance between the measuring arms, Golinellir nowhere teaches or suggests that the measuring arms, annular element, and/or feelers in any way are capable of urging the tubular member into a cross-sectional shape that corresponds to the reference shape of the aperture. In fact, the feelers are the only devices that actually contact the part to be checked and do not urge the part at all, but rather only cause the measuring arms to rotate depending on the diameter of the part being measured.

Moreover, Ferguson discloses a tube variation measuring device that includes a self-propelled device that is capable of detecting variations in the tube diameter. The measuring device includes two frame sections **20, 22** that are hingedly connected via a hinge pin **24**. The measuring device also includes idler wheels **28** and a pair of driven wheels **38** that move the tube

in a longitudinal direction to allow a sensor **80** to continuously measure the gap between the frame sections. The gap **78** may be detected between the ends of the frame sections with a sensor such as a conventional linear variable differential transformer ("LVDT"). Even though Ferguson discloses that gaps may be detected by a sensor, Ferguson fails to teach or suggest that the wheels contacting the outer surface of the tube urges the tube into a cross-sectional shape corresponding to the reference shape of the aperture when the frame sections are at least partially closed. Ferguson only discloses that tension springs **72** act to firmly hold the frame sections in a closed position and the wheels firmly against the outer surface of the tube, but the wheels are not described as urging or otherwise changing the cross-sectional diameter of the tube.

Amended independent method Claim 17 includes similar recitations as that of independent Claim 1, including adjusting at least one of the template members to at least partially close the aperture, thereby urging the tubular member to a cross-sectional shape corresponding to a reference shape of the aperture. As such, Claim 17 is distinguishable over each of the Fuchs, Golinelli, and Ferguson references for at least those reasons discussed above with respect to Claim 1. However, the Examiner also rejects independent Claim 17 over the combination of Golinelli with Frenken, where Frenken discloses a pressing tool with pressing jaws. The pressing tool **1** of Freken includes pressing levers **2** that operate in a tong-like manner, wherein one end of the tool is a pressing jaw **3**. The pressing jaw **3** defines a pressing mouth **12** which includes a circular shape in a closed position such that each pressing jaw has a semicircular configuration. The closing position of the pressing jaws is monitored by a monitoring device **13**, where one lever includes a sensor **15** in the region of the upper pressing jaw, and the opposing lever includes an adjustable stop **17**. The sensor may also be formed as a mechanically acting release pin **23** such that a full pressing action of the blank is necessary in order for the pressing tool to release the blank.

It is initially submitted that Frenken cannot be properly combined with Golinelli. "Any analogous or pertinent prior art plays a role in the determination of the patentability of the claims at the time of invention." *Beckson Marine, Inc. v. NFM, Inc.*, 292 F.3d 718, 726 (Fed. Cir. 2002). A prior art reference is analogous if the reference is in the field of applicant's endeavor or, if not, the reference is reasonably pertinent to the particular problem with which the inventor

was concerned. *MPEP* § 2141.01(a) and § 2145; *In re Oetiker*, 977 F.2d 1443, 1446 (Fed. Cir. 1992). Furthermore, in order to properly combine references, a teaching or motivation to combine the references is essential. *In re Fine*, 337 F.2d 1071, 1075 (Fed. Cir. 1988). In fact, the Court of Appeals for the Federal Circuit has stated that, "[c]ombining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing toge ther the prior art to defeat patentability -- the essence of hindsight." *In re Dembiczak*, 175 F.3d 994 (Fed. Cir. 1999). Although the evidence of a suggestion, teaching, or motivation to combine the references commonly comes from the prior art references themselves, the suggestion, teaching, or motivation can come from the knowledge of one of ordinary skill in the art or the nature of the problem to be solved. *Id.* In any event, the showing must be clear and particular and "[b]road conclusory statements regarding the teaching effect of multiple references, standing alone, are not 'evidence'." *Id.*

Applicants submit that the requisite suggestion or motivation to combine Frenken with Golinelli is lacking and, in fact, submit that Frenken actually teaches away from the purported combination. In this regard, Golinelli is directed to measuring the external dimensions of a part, while Frenken is directed to a pressing tool that employs pressing jaws to shape a blank. Thus, each of Golinelli and Frenken is directed to solving a different problem, where Golinelli is concerned with measuring external dimensions of a tube without shaping the part in any way, while Frecken is concerned with providing complete closure of a pressing tool that shapes a blank by reducing the diameter of the blank, such as for sanitary fittings. As such, Frenken does not provide a solution to the problem addressed by Golinelli of providing a simpler and cheaper ring gauge for providing external diameter measurements that is compact, reliable, and user friendly. In contrast, the gap sensor provided in Frenken is simply used to ensure that the blank has been adequately formed by the pressing tool, and only allows release of the pressing jaws once the jaws have reached a completely closed position. For each of the forgoing reasons, there is no teaching or suggestion to combine Frenken with Golinelli.

Even if Frenken is combined with Golinelli, the combination does not teach or suggest that the tubular member is capable of being urged to a cross-sectional shape corresponding to the reference shape of the aperture when at least one of the template members is at least partially

closed, and that a measurement device is configured to measure the relative position between the first and second template members. In contrast and as described above, Golinelli does not teach or suggest urging a tubular member into a cross-sectional shape corresponding to a reference shape of the aperture. Furthermore, although Frenken arguably discloses urging the pressing jaws to shape a blank, once the measuring jaws have reached a closed position, there is no need to measure the blank, as the blank has already been formed and each blank will have the same diameter defined by the pressing tool. In fact, Frenken states "a full pressing action of the blank is absolutely necessary in order for the pressing tool to be removed thereafter" (Col. 2, lines 15-18). As such, measurement of the blank is unnecessary since there is no reason to measure the position between the measuring jaws since there is no gap to measure. In addition, Frenken does not teach or suggest actually measuring the relative adjustment of the pressing jaws between the open and closed positions, as Frenken only discloses monitoring the closing position of the mouth ends of pressing jaws. Therefore, Frenken also fails to disclose a measuring device that measures the relative position between the first and second template members that is indicative of the cross-sectional size of the tubular member.

Therefore, the rejections of independent Claims 1 and 17 under 35 U.S.C. § 102(b) and § 103(a) over the cited references are overcome. As such, it is submitted that dependent Claims 2-9 and 18-25 are allowable for at least those reasons discussed above with respect to independent Claims 1 and 17.

C. The Rejections of Independent Claim 10 under 35 U.S.C. § 102(b) and § 103(a) are Overcome

Independent Claim 10 has been amended to recite that the first and second template members are configured to receive and substantially contact an outer circumference of the tubular member in the aperture. Thus, because the reference size of the first and second template members typically corresponds to the shape of the tubular member, the first and second template members will substantially contact an outer circumference of the tubular member when positioned within the aperture. For instance, as shown in Figure 1 of the present application, the arcuate portions of each of the first and second template members correspond to the curved cross

section of the tubular member. As such, the first and second template members cooperably define the aperture, which corresponds to a circular cross-sectional reference shape of the tubular member. Claim 10 further recites that a measurement device is configured to measure a gap between the first and second template members, where a measurement of the measurement device is indicative of the cross-sectional size of the tubular member.

The Examiner first rejects independent Claim 10 as anticipated by Golinelli. However, as described above, Golinelli only discloses that a pair of feelers **12, 14** contacts the part **17** being checked by the ring gauge. Thus, the feelers are not template members that are in substantial contact with an outer circumference of the part when positioned within the annular element **37** and, rather, contact only enough of the part being checked to cause rotation of the measuring arms **4, 5**. Therefore, the feelers do not define an aperture having a generally circular cross-sectional reference shape, as defined by independent Claim 10.

Moreover, independent Claim 10 is rejected as being anticipated by Ferguson. However, as shown in Figure 1 of Ferguson, the wheels **28, 38** do not contact a substantial portion of the outer circumference of the tube and, instead, only contact three distinct locations on the tube to facilitate movement of the tube such that the LVDT is capable of measuring the diameter along the length of the tube. It follows that Ferguson also does not disclose template members that define a generally circular cross-sectional shape that is configured to receive and substantially contact an outer circumference of the tubular member, as recited in independent Claim 10.

The remaining references, taken alone or in combination, are also distinguishable from independent Claim 10. For instance, Fuchs and Baresh share similar shortcomings as that of Golinelli and Ferguson. Fuchs discloses measuring surfaces Mf**10**, Mf**11** that do not substantially contact an outer circumference of the tube, as the measuring jaws Mb**10**, Mb**11** include lateral recesses **R** that are at least a substantially similar radial length as that of the measuring surfaces about the circumference of the tube. Baresh only discloses probes and anvils that contact the tube at four locations spaced approximately 90 degrees apart. However, the probes and anvils are not analogous to first and second template members that receive and substantially contact an outer circumference of the tubular member. Moreover, Frenken, even if considered to be combinable with any of the cited references, does not teach or suggest

independent Claim 10 for at least those reasons discussed above with respect to independent Claim 1.

As such, the rejections of independent Claim 10 under 35 U.S.C. § 102(b) and § 103(a) over the cited references are overcome, and it is submitted that dependent Claims 11-16 are allowable for at least those reasons discussed above with respect to independent Claim 1.

D. The Rejection of Independent Claims 26 and 32 under 35 U.S.C. § 102(b) is Overcome

Applicants submit that amendments to independent Claims 26 and 32 are not necessary to overcome the rejections in the Official Action. Claim 26 recites that an apparatus for measuring a tubular member includes a plurality of measurement devices positioned at circumferentially spaced locations around the perimeter of the aperture. The measurement devices are configured to contact the tubular member when the aperture is adjusted to the closed position, and each of the measurement devices are also configured to provide an output characteristic of a contact force between the measurement device and the tubular member such that the outputs of the measurement devices are indicative of a measurement of the tubular member. Thus, each measurement device can be a sensor that detects force, pressure, and/or strain and generates an electrical signal representative of the force, pressure, or strain. The outputs of the measurement device may be used to determine a measurement of the tubular member, such as the stiffness or a variation in the wall thickness of the tubular member. Independent Claim 32 includes similar recitations as that of independent Claim 26 in the context of a method.

The Examiner finds that independent Claims 26 and 32 are anticipated by Baresh. Baresh discloses an ovality measuring device that includes a head **12** having two parts **14, 16** pivotally connected to one another. A pair of rollers **46a, 46b** is attached to respective anvils **42a, 42b**, where the anvils are mounted to the head and spaced 90 degrees from one another. A pair of electromechanical probes **48a, 48b** are also mounted to the head with reciprocating rods **50a, 50b** that are urged inwards with springs **52a, 52b**. Figure 6 of Baresh depicts another embodiment where a hand held probe **92** has a head **94** including two pivotally joined parts **96, 98**, as well as a pair of probes **104a, 104b** extending in the same radial plane as the anvils **100a,**

100b and at diametrically located positions with respect to the anvils. The probes are LVDT sensors that detect differences between the signals from each probe to determine the ovality of a tube.

Baresh does not teach or suggest measurement devices that are configured to contact the tubular member when the aperture is adjusted to the closed position, and that each of the measurement devices is also configured to provide an output characteristic of a contact force between the measurement device and the tubular member such that the outputs of the measurement devices are indicative of a measurement of the tubular member. In contrast, Baresh only discloses that electromechanical probes, such as LVDT sensors, may be used to measure the ovality of a tube. Baresh nowhere discloses that the output characteristic is a contact force that is indicative of a measurement of the tube, as the LVDT sensors only measure the displacement of the moveable cores. In addition, Baresh does not disclose first and second template members that define a cross-sectional reference shape of the tubular member. Conversely, the two parts **96, 98** of Baresh do not define a template that conforms to a cross-sectional shape (*i.e.*, circular) of the tube being measured, as Baresh only includes a pair of anvils and probes that contact the outer surface of the tube and are positioned at right angles to one another.

Furthermore, neither Baresh nor any of the remaining cited references, disclose a plurality of measurement devices positioned at circumferentially spaced locations about the perimeter of the aperture. To further highlight this distinction, dependent Claims 38 and 39 have been added to recite that the measurement devices are configured to substantially contact an outer circumference of the tubular member, or that the apparatus includes at least three measurement devices. Conversely, Baresh only discloses a pair of probes spaced 90 degrees from one another, which is unlike the measurement devices described in dependent Claims 38 and 39.

The remaining references, taken individually or in combination, do not teach or suggest measurement devices that are configured to contact the tubular member when the aperture is adjusted to the closed position, and that each of the measurement devices is also configured to provide an output characteristic of a contact force between the measurement device and the

tubular member such that the outputs of the measurement devices are indicative of a measurement of the tubular member. Applicants also submit that several of the dependent claims are also distinguishable from the cited references. In particular, dependent Claims 29 and 35 recite that each measurement device may detect at least one of a force, pressure, and stress that is representative of the stiffness of the tubular member. The Official Action relies upon the combination of Baresh with Sako for disclosing dependent Claims 29 and 35. However, Sako only discloses measuring pressure changes within a pipe with a transducer and nowhere teaches or suggests that this pressure measurement may be used to determine the stiffness of the pipe.

Thus, the rejection of independent Claims 26 and 32 under 35 U.S.C. § 102(b) over Baresh is overcome. Since the dependent claims include each of the recitations of a respective independent claim, the rejection of dependent Claims 27-31 and 33-36 is also overcome for at least the same reasons as described above in conjunction with independent Claims 26 and 32.

CONCLUSION

In view of the amendments and remarks presented above, Applicants submit that the present application is in condition for allowance. As such, the issuance of a Notice of Allowance is therefore respectfully requested. In order to expedite the examination of the present application, the Examiner is encouraged to contact Applicants' undersigned attorney in order to resolve any remaining issues.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

Trent A. Kirk
Registration No. 54,223

Customer No. 00826
ALSTON & BIRD LLP
Bank of America Plaza
101 South Tryon Street, Suite 4000
Charlotte, NC 28280-4000
Tel Charlotte Office (704) 444-1000
Fax Charlotte Office (704) 444-1111

CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the US Patent and Trademark Office at Fax No. (703) 872-9306 on the date shown below.

Lorna Morehead — February 14, 2005
Lorna Morehead — Date

CLT01/4689066v1